Claims

What is claimed:

1. A system for establishing a remote communications pipe between a PSD and a remote computer system over a network using a client as a host to said PSD, said system comprising:

at least one local client further comprising means for functionally connecting to a PSD Interface and said network, wherein said client is functionally communicating over said network with said remote computer system ; and further comprising;

client communications means for transmitting and receiving messages over said network using a packet based communications protocol, and for transmitting and receiving APDUs through said PSD Interface;

first client data processing means for receiving incoming messages using said client communications means and separating encapsulated APDUs from said incoming message packets and routing said APDUs through said PSD Interface; and

second client data processing means for encapsulating said APDUs received through said PSD Interface into outgoing message packets and transmitting said outgoing message packets over said network using said client communications means.

2. The system according to claim 1 further comprising;

at least one PSD comprising means for functionally connecting to said PSD Interface and wherein said PSD is functionally communicating through said Interface; and further comprising;

PSD communications means for transmitting and receiving APDU messages through said PSD Interface; and

PSD processing means for interpreting said APDU messages, executing commands included in said APDU messages and transmitting responses in said APDU format through said PSD Interface using said communications means; and

memory storage means for storing at least one unique identifier.

3. The system according to claim 1 further comprising;

at least one remote computer system comprising means for functionally connecting to said network and wherein said remote computer system is functionally communicating with said client; and further comprising;

server communications means for transmitting and receiving messages over said network using said packet communications protocol;

first server data processing means for receiving requests from at least one applications level program, translating said requests into APDU format and transmitting said APDU formatted requests to a second server data processing means,

second server data processing means for encapsulating said APDUs receiving from said first server data processing means into outgoing message packets and transmitting said outgoing message packets over said network using said server communications means,

third server data processing means for receiving incoming messages using said server communications means and separating encapsulated APDUs from said incoming message packets and routing said APDUs to a forth server data processing means; and

forth server data processing means for receiving and translating said APDUs sent by said third server data processing means into another message format and transmitting said translated message to at least one applications level program.

4. The system according to claim 1 wherein said network is a public network.

5. The system according to claim 1 wherein said network is a private network.

6. The system according to claim 1 wherein said protocol is an open communications protocol.

7. The system according to claim 1 wherein said protocol is a secure communications protocol.

8. A system for establishing a secure remote communications pipe between a PSD and a remote computer system over a network using a client as a host to said PSD, said system comprising:

5   at least one local client further comprising means for functionally connecting to a PSD Interface, wherein said client is functionally communicating over said network with said remote computer system; and further comprising;

10   client communications means for transmitting and receiving messages over said network using a packet based communications protocol, and for transmitting and receiving APDUs through said PSD Interface; and

15   first client data processing means for receiving incoming messages using said client communications means and separating encapsulated APDUs from said incoming message packets and routing said APDUs through said PSD Interface; and

20   second client data processing means for encapsulating said APDUs received through said PSD Interface into outgoing message packets and transmitting said outgoing message packets over said network using said communications means.

9. The system according to claim 8 further comprising;

25   at least one PSD comprising means for functionally connecting to said PSD Interface and functionally communicating through said Interface; and further comprising;

30   PSD communications means for transmitting and receiving encrypted APDU messages through said PSD Interface;

first PSD processing means for decrypting incoming encrypted APDU messages using stored cryptographic information;

35   second PSD processing means for interpreting said APDU messages, executing commands included in said APDU messages;

third PSD processing means for encrypting outgoing APDU response messages using stored cryptographic information and transmitting said

responses in said APDU format through said PSD Interface using said communications means; and

memory storage means for storing at least one unique identifier and at least one cryptographic key,

10. The system according to claim 8 further comprising;

at least one remote computer system comprising means for functionally connecting to said network, wherein said remote computer system is functionally communicating with said client; and further comprising;

server communications means for transmitting and receiving messages over said network using said packet communications protocol;

first server data processing means for receiving requests from at least one applications level program, translating said requests into APDU format and transmitting said APDU formatted requests to a cryptography server data processing means;

second server data processing means for encapsulating said APDUs receiving from said cryptography data processing means into outgoing message packets and transmitting said outgoing message packets over said network using said server communications means;

third server data processing means for receiving incoming messages using said server communications means and separating encapsulated APDUs from said incoming message packets and routing said APDUs to a cryptography data processing means;

forth server data processing means for receiving and translating said APDUs sent by said cryptography processing means into another message format and transmitting said translated message to at least one applications level program; and

cryptography data processing means for encrypting outgoing APDUs received from said first server data processing means and sending the encrypted APDUs to said second server data processing means and for decrypting incoming encrypted APDUs received from said third server

data processing means and sending the decrypted APDUs to said forth server data processing means.

11. The system according to claim 8 wherein said network is a public network.

12. The system according to claim 8 wherein said network is a private network.

13. The system according to claim 8 wherein said protocol is an open communications protocol.

14. The system according to claim 8 wherein said protocol is a secure communications protocol.

15. The system according to claim 1 or 8 wherein said network is a hardwired network.

16. The system according to claim 1 or 8 wherein said network is a digital cellular network.

17. The system according to claim 1 or 8 wherein said network is a wireless network.

18. The system according to claim 1 or 8 wherein said network is an optical network.

19. The system according to claim 1 or 8 wherein said network is a telephone acoustical network.

20. A method of establishing a communications pipe between a PSD and a remote computer system over a network using a client as a host to said PSD, wherein said client and said remote computer system are in functional communications using a packet based communications protocol over said network, said method comprising:

generating a request to access said PSD on said remote computer system, wherein said request is in a non-native protocol for communicating with said PSD and said request is generated by an API Level Program,

converting said request from said non-native protocol to an APDU formatted protocol using a first server data processing means,

encapsulating said APDU formatted protocol into said packet based communications messages producing an encapsulated APDU message, using a second server data processing means,

transmitting said encapsulated message over said network using said packet based communications protocol,

receiving said encapsulated message sent over said network by said client, processing said message using a first data processing means to separate said encapsulated APDU message,

routing said APDU message through a hardware device port assigned to a PSD Interface, wherein said PSD Interface is in processing communication with said PSD,

receiving said APDU message through said PSD Interface by said PSD and processing said APDU message using a first internal PSD data processing means,

generating a response message in APDU format by said PSD using a second internal PSD data processing means and transmitting said response through said PSD Interface,

receiving said APDU response message through said PSD Interface by said client and encapsulating said APDU response message into said packet based communications message producing an encapsulated APDU message, using a second data processing means,

transmitting said encapsulated message over said network using said packet based communications protocol,

receiving said encapsulated message sent over said network by said remote computer system, processing said message using a third server data processing means to separate said encapsulated APDU message,

converting said response message from said APDU formatted protocol using a forth server data processing means, and forwarding said response to at least one API Level Program.

21. The method according to claim 20 wherein said network is a public network.

22. The method according to claim 20 wherein said network is a private network.

23. The method according to claim 20 wherein said protocol is an open communications protocol.

24. The method according to claim 20 wherein said protocol is a secure communications protocol.

25. The method according to claim 20 wherein said communications pipe is initiated automatically upon connection of said PSD to said local client.

26. The method according to claim 20 wherein said communications pipe is initiated by a client requesting access to information contained on one or more networked clients.

27. The method according to claim 20 wherein said communications pipe is initiated by a client requesting access to information contained on one or more networked remote computer systems.

28. The method according to claim 20 wherein said communications pipe is initiated by one or more networked remote computer systems requesting access to said PSD.

29. A method of establishing a secure communications pipe between a PSD and a remote computer system over a network using a client as a host to said PSD, wherein said client and said remote computer system are in functional communications using a packet based communications protocol over said network, said method comprising:

generating a request to access said PSD on said remote computer system, wherein said request is in a non-native protocol for communicating with said PSD and said request is generated by an API Level Program,

converting said request from said non-native protocol to an APDU formatted protocol using a first server data processing means, and sending said APDU formatted protocol to a cryptography data processing means,

receiving and encrypting said APDUs formatted protocol using cryptography data processing means and sending the encrypted APDUs to said second server data processing means, wherein said encryption method is pre-established,

encapsulating said encrypted APDUs into said packet based communications messages producing an encapsulated and encrypted APDU message, using a second server data processing means,

transmitting said encapsulated message over said network using said packet based communications protocol,

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receiving said encapsulated message sent over said network by said client, processing said message using a first data processing means to separate said encapsulated and encrypted APDU message,

5   routing said APDU message through a hardware device port assigned to a PSD Interface, wherein said PSD Interface is in processing communication with said PSD,

receiving said APDU message through said PSD Interface by said PSD and decrypting said APDU message using an internal PSD data cryptography means,
10   wherein said cryptography means is pre-established, and sending decrypted APDU messages to a first internal PSD data processing means,

receiving said APDU message from said internal PSD data cryptography means and processing said APDU message using said first internal PSD data processing means,

15   generating a response message in APDU format by said PSD using a second internal PSD data processing means, encrypting the APDU response message using said internal PSD data cryptography means and transmitting said response through said PSD Interface,

20   receiving said APDU response message through said PSD Interface by said client and encapsulating said APDU response message into said packet based communications message producing an encapsulated APDU message, using a second data processing means,

25   transmitting said encapsulated message over said network using said packet based communications protocol,

receiving said encapsulated message sent over said network by said remote
30   computer system, processing said message using a third server data processing means to separate said encapsulated and encrypted APDU message,

decrypting said encrypted APDUs receiving from said third server data processing means using said cryptography data processing means and sending the decrypted
35   APDUs to said forth server data processing means,

converting said response message from said APDU formatted protocol using a forth server data processing means, and forwarding said response to at least one API Level Program.

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30. The method according to claim 29 wherein said network is a public network.

31. The method according to claim 29 wherein said network is a private network.

32. The method according to claim 29 wherein said protocol is an open communications protocol.

33. The method according to claim 29 wherein said protocol is a secure communications protocol.

34. The method according to claim 29 wherein said secure communications pipe is initiated by a client requesting access to information contained on one or more networked clients.

35. The method according to claim 29 wherein said secure communications pipe is initiated by a client requesting access to information contained on one or more networked remote computer systems.

36. The method according to claim 29 wherein said secure communications pipe is initiated by one or more networked remote computer systems requesting access to said PSD.

37. The method according to claim 20 or 29 wherein said network is a hardwired network.

38. The method according to claim 20 or 29 wherein said network is a digital cellular network.

39. The method according to claim 20 or 29 wherein said network is a wireless network.

40. The method according to claim 20 or 29 wherein said network is an optical network.

41. The method according to claim 20 or 29 wherein said network is a telephone acoustical network.